

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application No.: 10/633,764  
Filing Date: August 4, 2003  
Applicants: Yihua Chang et al.  
Group Art Unit: 1794  
Examiner: Michael C. Miggins  
Title: Membranes with Fluid Barrier Properties and Articles Containing  
Such Membranes  
Docket No.: 4022-000009

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Commissioner of Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Request for Reconsideration Under 37 C.F.R. § 41.52**

Sir:

Appellants respectfully request reconsideration of the Decision mailed June 16, 2010 because the Board misapprehended or overlooked the points highlighted below. This Request is due by August 16, 2010.

## **Flexible v. Elastic**

Appellants believe the Board misapprehended the distinction between flexible and elastic and overlooked the Bonk reference's dismissal of flexibility as indicating the elasticity necessary for the membrane of the Bonk cushioning device.

The Board adopted the Examiner's finding that "the nano-filler does not appreciably decrease the resilience of the membrane (column 6, lines 41-54 [of Mueller], since the films are flexible" on page 4 of the Examiner's Answer. See Decision, p. 3 (paragraph beginning "We adopt . . ."), p. 4 ("both references deal with flexible films").

The Board overlooked the fact that flexibility is not resilience. The Mueller films are not elastic; they deform. Appellant in the Reply Brief, p. 2, quoted the Mueller patent, "The mechanical properties of materials for plastic packaging are physical properties that relate to the response (deformation) of the material under an applied stress." The Mueller plastic deforms; it is not resilient. Applicants respectfully quote the definition of "resilience" from the *Engineering Materials Handbook* attached in the Evidence section of the Appeal Brief: "The ratio of energy returned, on recovery from deformation, to the work input required to produce the deformation (usually expressed as a percentage). The ability to regain an original shape quickly after being strained or distorted." Rubber is elastic; aluminum foil is flexible. Imagine which would make the better inflated cushioning device in an athletic shoe.

The Mueller film is stiffer and deforms under stress. See Appellant's Reply Brief, p. 2 (quoting from Mueller, col. 6, ll. 33-40). These are not properties whose increase lead to a more elastic material. In fact, quite the opposite. As stiffness increases, elasticity decreases. Deformation is what happens when a polymeric material is inelastic.

Bonk dismissed flexibility as an indicator of whether a film would be suitable for Bonk's cushioning bladder. As quoted in Appellants' Reply Brief, Bonk states, "While thermoplastic barrier films may be flexed to a certain extent due to their thinness, thermoplastic barrier films do not generally have sufficient elasticity for many applications. Elastic materials, or elastomers, are able to substantially recover their original shape and size after removal of a deforming force, even when the part has undergone significant deformation. Elastomeric properties are important in many applications, including inflatable bladders for footwear and hydraulic accumulators." Bonk, col. 1, lines 31-40.

The whole *raison d'être* for Bonk's invention was the increased resilience of the membrane of Bonk's cushioning bladder. The Bonk patent teaches in col. 3, lines 52-53 that "the membrane must be elastic and be resistant to fatigue failure" and in col. 5, lines 22-26: "The microlayer polymeric composite material of the invention has rubber-like or elastomeric mechanical properties provided by the structural material that allows it to repeatedly and reliably absorb high forces during use without degradation or fatigue failure. It is particularly important in applications such as footwear and hydraulic accumulator for the membrane to have excellent stability in cyclic loading." Appellants' Reply Brief, p. 4.

The Board never once mentioned resilience or elasticity in weighing the facts to determine obviousness to modify the Bonk membrane and cushioning bladder. Respectfully, to have overlooked the importance of resilience to Bonk was error; to have equated flexibility to resilience was also error, particularly in the face of Bonk's express teaching to the contrary.

## The Standard for Teaching Away

The Board misapprehended the importance of the lack of an express statement in Bonk that “the use of such nano-sized clay filler particles in a gas barrier membrane would have been undesirable.” Decision, p.4. The Board states that “to teach away, a reference must state that it ‘should not’ or ‘cannot’ be used in combination with other features in the prior art.” Decision, p.3. This is not in accord with the Federal Circuit’s statement of the law in *In re Gurley* as quoted in Appellants’ Appeal Brief on page 5, that “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.”<sup>1</sup> Respectfully, Appellants believe the Board may have erred in implying that “teaching away” would require some directive in the references not to do what the inventors did. Certainly, such a directive would suffice; but it is not a necessary condition. A more recent Federal Circuit case remains in accord with the authority Appellants provided: “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *Ricoh Co., Ltd. v. Quanta Computer Inc.*, 550 F.3d 1325, 1332 (Fed. Cir. 2008) (quoting *In re Kahn*, 441 F.3d 977, 990 (Fed. Cir. 2006)). The Board is referred also to *Ex parte Jellá*, 2008-1619 (BPAI 2008) (precedential) which states the law in this way: “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, . . . would be led in a direction divergent from the path that was taken by the applicant.” *In re Haruna*, 249 F.3d 1327, 1335 (Fed. Cir. 2001) (quoting *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999)).” The absence of

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<sup>1</sup> 27 F.3d 551, 553 (Fed. Cir. 1994).  
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an express warning not to proceed is not required. It is sufficient that Bonk taught that elasticity was key, and Mueller taught that stiffness, inversely related to elasticity, was increased.

A person of ordinary skill in the art, who starts with the Bonk cushioning bladder, would not embrace a modification that touts increased stiffness or other heightened mechanical properties that adversely affect elasticity of the bladder membrane.

Therefore, the Mueller reference would lead the person of ordinary skill *not* to put into the Bonk membrane a material that Mueller teaches will make that membrane stiffer, stiffness being inversely related to elasticity. As quoted on pages 4 of Appellants' Reply Brief, the Bonk patent teaches in col. 3, lines 46-53 that "the membrane *must be elastic* and be resistant to fatigue failure" (emphasis added) and in col. 5, lines 22-26: "The microlayer polymeric composite material of the invention has rubber-like or elastomeric mechanical properties provided by the structural material that allows it to repeatedly and reliably absorb high forces during use without degradation or fatigue failure. It is particularly important in applications such as footwear and hydraulic accumulator for the membrane to have excellent stability in cyclic loading." There is no reason that a person who desired to improve on the Bonk cushioning bladder, which *must* be elastic and for which excellent stability in cycle loading is "particularly important" would want to use a membrane more like the inelastic Mueller films, with higher stiffness, higher resistance to elongation, and other such great mechanical properties. Okay for plastic wrap, not so good for a cushioning bladder taking a pounding under an athlete's shoe.

Given the paramount importance to Bonk of membrane resilience, the improvement of which is Bonk's whole reason for employing the microlayer polymeric composite structure, and given the Mueller patent's teaching that incorporating its clay into a film will increase stiffness, one would (in the words of the *Gurley* case quoted in the Appeal Brief or any of *Ricoh*, *Kahn*,

*Jellá, Haruna, or Tec Air*) “be discouraged from following the path set out in the reference,” that is, discouraged from modifying the resilient Bonk membrane with a material expected to make the membrane stiffer and thus less resilient.

### **The Inadequacy of Mueller’s Claim to Improved Mechanical Properties**

The sole remaining justification the Board gave in support of the Decision was Mueller’s claim that incorporation of the clay filler “can improve the barrier properties without sacrificing, and many times improving, the mechanical, optical, and other properties.”<sup>2</sup> The key property of interest to Bonk, however, which is elasticity, Mueller expressly teaches elasticity *is* sacrificed. To Mueller it may be no sacrifice, but Mueller is concerned with different articles—packaging films—for which stiffness apparently provides some benefit, while the Bonk cushioning device membrane must not become stiffer, since for Bonk elasticity is key. There was no way, understanding that adding the filler would *increase* stiffness of a film, that one could predict making a film that *did not* have increased stiffness.

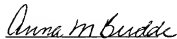
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<sup>2</sup> It is hardly out of the ordinary for a patent to state that its invention has excellent properties.  
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Conclusion

For these reasons, Appellants ask the Board to reconsider its decision.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Anna M. Budde".

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August 5, 2010  
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